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ABSTRACT

In fall 1993, administrators and faculty at the Crabappple Middle School in Roswell, Georgia, implemented the Multi-Age Team (MAT) program, creating multi-age teams of sixth-, seventh-, and eighth-grade students. The projects' main goal was to enhance self-esteem. Additional goals included implementation of interdisciplinary, thematic instruction; flexible scheduling; and Project Adventure, a program designed to build leadership, group relationships, and self-confidence. Other goals included the development of critical thinking, cooperative learning, hands-on learning, and inclusion grouping for learning disabled and gifted students. This 1994-95 report describes the evaluation procedures used, data collected, and the interpretation of the results. The quantitative data collected for the MAT and comparison student groups included the Iowa Test of Basic Skills (ITBS) results, Coopersmith Self-Esteem Inventory (SEI) scores, and attendance and behavior referral data. The ITBS math computation scores of MAT students were lower than scores for comparison group students--a result that may be linked to certain curricular decisions. Analysis of Coopersmith Self-Esteem Inventory data-in which sixth- and seventh-grade comparison students had higher means than MAT students but eighth-grade MAT students had higher scores than eighth-grade comparison students-suggested several interpretations. MAT students also had fewer disciplinary referrals. Qualitative data collected included responses to surveys and interviews conducted with students, parents, and teachers in both programs. Analysis of interview and survey responses indicated that most faculty believed that the MAT structure, Project Adventure, and mentoring relationships enhanced students' self-esteem. Responses also indicated that interdisciplinary teaching occurred; however, in year two, units were smaller and math appeared to be taught separately. Hands-on learning appeared to occur more frequently in the MAT teams, scheduling was flexible, and many gifted and disabled students were taught with MAT groups. (Contains 1 figure, 1 chart, and 11 tables.) (LPP)

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Evaluation of Multi-age Team (MAT) Implementation at Crabapple Middle School: Report for 1994-1995

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Evaluation of Multi-Age Team (MAT) Implementation at
Crabapple Middle School

Introduction

MAT program implementation at Crabapple Middle was undertaken by administrators and faculty in the fall of 1993. An important project goal was the creation of multi-age teams of 6th, 7th, and 8th grade students. Two groups of approximately 110 students were assigned to teams of four teachers. At Crabapple, where achievement is high, ITBS percentile scores average 60-70%, the main goal was to enhance self-esteem. Additional goals included implementation of interdisciplinary, thematic instruction, flexible scheduling, Project Adventure, development of critical thinking, cooperative learning, hands on learning, and inclusion grouping for learning disabled and gifted students.

Program evaluation began at Crabapple Middle in 1993 and is continuing. The evaluation design involves both quantitative and qualitative methods. Quantitative data include Iowa Test of Basic Skills (ITBS) scores, Coopersmith Self-Esteem Inventory (SEI) scores, and attendance and behavior referral data. Qualitative measures include surveys and interviews conducted with parents, students, and teachers.

Procedures

Quantitative data included Iowa Test of Basic Skills (ITBS), Coopersmith Self-Esteem Inventory scores, and attendance and behavior referral data collected from MAT and Comparison students. Qualitative data included surveys administered to students and parents and annual interviews with students, parents, teachers in MAT and Comparison programs.

Quantitative Procedures. T-tests were used to determine if significant differences existed between MAT team and comparison groups for ITBS subtest scores, Coopersmith scores, and for attendance and discipline referral data at each school site during each year. T-tests were employed to determine if significant gains or losses in scores occurred for MAT and comparison groups from year to year.

Qualitative Procedures. Parent and student surveys, in which items focused on program goals, were constructed and administered to MAT and comparison students. Survey data were tabulated, percentages calculated, analyzed, and conclusions formed. Interviews with MAT and comparison parents were conducted. Responses were transcribed and analyzed, and conclusions were drawn.

Quantitative Results

This section summarizes quantitative findings from comparisons of the MAT Students with students in the Comparison group for year two of the project. Included here are results of analyses of data from the Coopersmith Self-Esteem Inventory (SEI), absenteeism, discipline referral, and the Iowa Tests of Basic Skills (ITBS). Given the unique circumstances surrounding the MAT program, its environment, and the lack of independence among students within

Crabapple Middle School, these results are best viewed in a descriptive context. Results of inferential tests comparing MAT students with Comparison students should be interpreted with this limitation in mind. Generalizations must, therefore, be seen as quite tentative with considerable need for validation through analyses of data collected over a longer span of time. Likewise, the transportability of this experience to other schools cannot be unambiguously established in the absence of actual implementations in other environments.

Because a school-based longitudinal study naturally involves multiple sets of students progressing through the institutional cycle, it is best for discrete sets of students to be conceptualized as cohorts defined by the years in which students are enrolled in particular grades. Even in the context of the MAT program, students are administratively tagged based on the grade level in which they would be currently placed. This facilitated the production of Chart 1 which depicts the four cohorts of students touched thus far by the MAT program in Crabapple Middle School together with the various data elements which currently exist.

Self Esteem. Table 1 contains a summary of the Coopersmith results comparing students in the MAT program with their Comparison counterparts for fall, 1994. Three cohorts of students are represented: students in the 6th grade who were experiencing the MAT program for the first time in 94-95, and those in grades 7 and 8 for whom this was their second year of involvement. The pattern of results involves clear differences among 6th graders with respect to all of the Coopersmith measures except School Achievement. Across the board, the Comparison students had greater means than did MAT participants. For 7th graders, this pattern is not quite as pronounced with the General Self and Home/Parent scales associated with statistically significant differences in favor of the Comparison Students. With the 8th graders a somewhat different pattern emerges. Statistically significant differences, noted for all scales except for Home/Parent, are in favor of the MAT students.

Table 2 contains a summary of Coopersmith results comparing students in the MAT program with Comparison students for spring, 1995. The same three cohorts are represented and include 6th grade students who were concluding their first year of being in MAT, and 7th and 8th graders who were concluding a second year of MAT. Coopersmith results for these cohorts reveal a similar pattern to those contained in Table 1. Means for 6th and 7th grade Comparison students are generally higher than those of MAT students while means for MAT 8th graders are higher than those of Comparison students. However, in the fall of 1994, most (seven of ten) means for Comparison 6th and 7th graders were significantly higher than MAT means. By spring, 1995, there were no significant differences between MAT and Comparison Coopersmith means for 6th and seventh graders. Similarly, the fall, 1995, pattern for 8th graders' Coopersmith scores continued. With the exception of the Home/Parent variable, MAT 8th graders obtained significantly higher mean scores than Comparison students.

This pattern of results has several possible interpretations none of which can be unambiguously embraced. One is that exposure to the program carries with it initially negative consequences for the self-esteem of younger participants which are subsequently reduced with greater exposure and increased maturation. Such an interpretation is appealing given a sense of what it would be like to be in a multi-aged classroom as a younger member observing the attainments of one's older peers. Over time, accumulated experiences would lead older students into more self-esteem enhancing roles mentoring younger colleagues. Alternatively, the pattern

of results may represent chance variations in the students, the teachers, and the unique characteristics of the program as it comes to mature. Only a longer investigation could accumulate sufficient information to permit these and other interpretations to be judged as to adequacy.

Absenteeism and Disciplinary Referrals. Another potential barometer of student affect concerning school is afforded through institutionally collected information pertaining to student absenteeism and disciplinary referrals. Disciplinary referral rates are reported separately for those made by teachers within the students' team and those outside that team. Summaries of that information for both MAT and Comparison students are presented in Tables 3 and 4 for 1993-94 and 1994-95, respectively.

Considering absenteeism, there are no specific differences between MAT and Comparison students which would be judged to be statistically significant. Patterns of results with respect to the descriptive statistics find MAT students having slightly lower absenteeism rates for some grade levels in some years and higher rates for others.

In general, disciplinary referrals were somewhat lower for MAT students, both in terms of referrals from teachers in their own teams as well as from teachers outside those teams. Where there were statistically significant results, they were in favor of the students participating in MAT. Differences observed within the data from 1994-95 do, however, seem less pronounced than those from the first year of the program in 1993-94.

Achievement as Assessed by the ITBS. Given the prominent role of standardized test scores in the current environment of accountability, no examination of a program such as the MAT would be complete without an examination of students' test scores. Currently, the nature of the testing program affecting students in Crabapple Middle School is such that 7th and 8th grade students take the Iowa Test of Basic Skills each spring. Revisions in the state mandated aspect of the testing program have often led to the administration of just reading and mathematics sections.

A summary of the available ITBS information is presented in Tables 5 through 7 for the years 1992-93 through 1994-95. Test information for students was available only in the form of percentile ranks, thus average percentile ranks appear in those tables.

Inspection of the information in those tables reveals just two results of real interest. First, students at Crabapple score quite well on the ITBS. The average percentile ranks are virtually all in the 60s and 70s. Second, the only statistically significant differences between MAT and Comparison students is with respect to their average performance on the Math Computation subscale where the MAT students clearly do less well. This particular anomaly has been linked to certain curricular decisions which were made in one of the MAT teams.

Generally these scores must be seen as providing something of a baseline against which future test performance can be compared. As the MAT program matures, benefits within this area may take place, although overall performance is already at a fairly high level.

Qualitative Results:

Interviews

Interview questions focused on goals of the middle school MAT Projects. The MAT projects sought to enhance self-concept, to increase motivation and attendance, to improve sense of community, and to enhance commitment and empowerment of students, teachers, and parents. Multi-age grouping, flexible scheduling, interdisciplinary thematic instruction, cooperative learning, instruction on critical thinking, and Project Adventure were employed to accomplish goals.

MAT Grouping. Multi-aged grouping has been implemented at Crabapple Middle. Two teams, each with 110 students and four to six teachers, were created in the fall of 1993 and have continued to date. Each team has approximately 40 eleven, 40 twelve, and 40 thirteen year old students. Teaching team members have concentrations in math, social studies, science, and reading/language arts. Gifted and learning disabled students are served on team and, in year two of MAT implementation, MAT teachers earned certifications in gifted education. Music and art teachers teach those subjects within the team as well.

Parent survey information, shown in Table 9, seems to support the implementation of the MAT structure. MAT parents gave an above average rating (B) to both long-term and short-term grouping of students. While the mean survey responses for MAT students, summarized in Table 10, are higher for the item on grouping, no significant difference existed between MAT and Comparison students evaluations.

Self-esteem. In year one, MAT teachers felt the MAT grouping, which facilitated developmentally appropriate instruction, caused students to be positive about school and about the MAT approach. However, in mid-year, some parents felt the gifted children would perform better in resource classes. Changing the MAT schedule back to seven 50 minute periods a day caused considerable anxiety for faculty and students and MAT teachers worried that the change may have impacted students negatively. By second semester, however, MAT teams resumed flexible scheduling and both teams settled into a routine. Most students, teachers, and parents liked the MAT arrangement and believed the MAT structure was superior to conventional grouping and scheduling.

MAT teachers believed the MAT program and Project Adventure boosted student self-esteem and helped teachers and students adjust to the new program. In year two teachers said that, since they already knew students from the previous year, individualization of instruction for students' strengths and weaknesses could occur from the beginning of the year. Teachers did not have to wait to get acquainted with students. One MAT student joked that teachers knew them too well!

MAT students indicated that, in year two, students were more comfortable with the MAT grouping and that Project Adventure helped with bonding across grade levels. Eighth graders said they recognized that sixth graders had good ideas and could assume leadership roles. Sixth graders said, "It was nice when eighth graders helped us and looked out for us."

In years one and two, some students in MAT indicated they missed their friends in regular classes and eighth graders said they missed traditional eighth grade privileges (similar to senior status in the high school). Students and parents in the regular program believed that MAT

students received special treatment. A MAT B student said non MAT teachers treat MAT students differently. Comparison parents seemed to resent field trips, Project Adventure, and less homework which they felt the MAT students enjoyed.

In year two, MAT teachers felt that

> ...kids with low esteem, who are school phobic, are helped in MAT. However, MAT is not...a panacea to cure severe behavior, motivation, and learning problems. If people believe that MAT is mainly a program for at-risk students then that expectation will destroy the program.

In year two MAT parents felt that MAT structure raised self-esteem. A mother said,

> Students absorb a more positive image and this shows up in the way the kids dress and the pride they feel in themselves. A strength of the program is that students feel less pressure to conform. Students [in MAT] respect one another and show more maturity. They rise to the occasion of being with older peers.

Table 9 reveals that MAT parents believed that Crabapple School is making satisfactory progress in the development of self-esteem. Parents evaluated efforts to develop self-esteem as average, with a grade of C+. The student survey included items to assess development of self-esteem: Teachers encourage students to do well and teachers and administrators encourage students to feel good about themselves. On both items, students gave a rating of above average (B-) and there were no significant differences between responses of MAT and Comparison students. The evaluator's perceptions are that Crabapple has a caring faculty and climate that is generally quite positive. During interviews students, parents, and faculty comment on this fact with considerable pride. Frequent anecdotes are provided to illustrate how a climate of sensitivity and caring occurs.

Project Adventure. Project Adventure (PA) is a ropes course program designed to build leadership, group relationships, and self-confidence. In year one, PA was implemented in the fall and the plan was to continue PA activities on a weekly basis. Students, parents, and teachers enjoyed PA and were convinced that the project built self-confidence, leadership, and increased trusting relationships for students in the MAT project.

Parents and students indicated a problem was that, because of a lack of time, PA was not taught for periods of weeks. Students, in particular, were frustrated that the Project was not carried out weekly as planned. Parents and students indicated that in year two PA was not taught often enough and that some activities were repetitious.

A MAT A student reflected that,

> Project Adventure is good. It teaches trust, leadership, and how to deal with different people. It teaches one to cope and about life. It helps students learn to set goals.

In year two, teachers outside the MAT teams began to use Project Adventure as well. Overall, students, parents, and faculty were quite positive about Project Adventure and the program's potential for development in the personal and social realms. Survey results from the end of year two, shown in Tables 9 and 10, indicates that parents and students evaluated the implementation of PA as above average (B).

Interdisciplinary teaching. Within the MAT project, large, planned units involving all MAT teachers were conducted in year one. An example was the settlement of Georgia unit in which students built rafts to cross the Chattahoochee River. Parents, teachers, and students participated in the raft trip. All of the teachers and students within a team participated. In year two, units were smaller and appeared to involve less whole-team planning. MAT teachers appeared to pair off for planning and teaching and to plan units more informally.

A MAT teacher said

> There is not enough time to do sit down and write out units. We could be given duty days to write units but we would rather not be out of the room... Units this year are not forced units which would appear artificial. We integrate the units informally. We take a piece and do it. We do shorter units unlike the larger units which took more time.

Examples of interdisciplinary planning can be found throughout the school. However, the use of integrated units appears more frequent in the MAT Teams. According to Table 9, parents felt that teachers are doing a good job of making connections among subjects. They evaluated the implementation of interdisciplinary teaching as above average (B). Students, in survey responses contained in Table 10, assessed as average (C+) the way in which subjects are connected.

Inclusion for Gifted and Learning Disabled. MAT parents felt the MAT program implemented in 1993-94 was an improvement over the previous program. Talented and gifted (TAG) and Learning Disabled (LD) students were not pulled out and taught separately. In the past, they felt LD students may have been stigmatized by labeling and special instruction. Students not pulled out for TAG may have been stigmatized (at Crabapple, about 30% of students are identified as gifted). A parent of a learning disabled child indicated,

> My child is learning disabled in mathematics and would get sick last year because of fire drills where students would see her with LD students. This year (year one) she is mainstreamed in MAT and is on grade level and has a 97 average!

Both MAT faculty and a teacher of LD students expressed a preference for teaching LD students in the MAT structure.

In year one, some parents were concerned that TAG students were not served well in the MAT program through inclusion. During year two all MAT teachers received training for gifted education certification. By the end of year two, MAT teachers indicated that parents were comfortable with the MAT approach to TAG and that, since the mid-point of year one, no

concern had been expressed.

MAT teachers believed that regular education students can do many of the tasks expected of and assigned to TAG students in the past. These teachers indicated that both regular education and TAG students are doing more "in depth" work through the contracts than would occur in a conventional program.

Table 9 and 10 reveal that both MAT and Comparison parents and students evaluated as average (C+) Crabapple's instruction of learning disabled and gifted students. While instruction of gifted and IRR students received slightly higher marks by comparison students and parents, no significant differences existed between those sets of responses.

Critical Thinking. Contracts were employed in the MAT teams to provide for higher order thinking. Contracts for gifted students included noticeably more complex goals, objectives, activities, and assessment. The MAT teams participated in the Future Problem Solving Program in year two. This program is designed to enhance creativity and critical thinking.

Scheduling. In year one, about half the MAT B students interviewed liked flexible scheduling and half liked the more traditional, structured scheduling. Students felt that MAT teachers and students were somewhat unclear about how the MAT program should operate. The schedule was made as the teams went along and a variety of large and small blocks of time were used.

In year two, MAT A teachers changed groups every six weeks and used various criteria to form groups. Groups were created using developmental readiness, sex, interest, achievement, and ability. Students and parents commented on the extensive use of learning styles for grouping students. A variety of period and unit lengths were employed, and a MAT A teacher commented:

> Working with the schedule in year one took a lot of time that we are not having to use in year two because we have a series of schedules from which we can select and use as we go along. Scheduling in year two is not the big problem that it was in year one. This year the day is less flexible because math is being taught separately.

A MAT B student indicated that in year two the schedule was less flexible, that more students were grouped by grade level, and there was less individualization.

Hands On Learning. Regarding the use of manipulatives in learning activities, MAT students in year one mentioned the following examples: TAG math used candy, labs in science, the rafting trip, social studies role-playing, a NASA trip, and a Global Products Inc. simulation.

In year two, a sixth grade boy said that learning in the MAT program is fun and he mentioned a unit on Latin America in which they did food preparation, soap carving, and flag-making. Dissection of frogs in science was mentioned, too. While many examples of hands on learning were given by the MAT and regular education students and faculty, there appeared to be somewhat greater use of hands on activities in the MAT teams. This observation is supported by the information in Tables 9 and 10 in which MAT parents and students gave higher ratings

on the hands on item than did Comparison parents.

Cooperative Learning. MAT Team A teachers indicated, in year one, that cooperative learning was not a goal in their team and that teachers were not trained to use particular models of cooperative learning. Cooperative learning was utilized about 30% of the time in MAT Team B, according to MAT Team B teachers.

In year two MAT A students said they worked in cooperative teams to do activities like mock trials. When they worked in groups, roles such as group leader are assigned. The use of cooperative learning teams in MAT teams appeared to be greater in year two. An average or higher rating is given to three items in the parent and student surveys which focus on teaching students to interact well. For the item on use of cooperative learning, MAT parents gave an evaluation of above average (B) while Comparison parents gave a evaluation of average (C+). MAT students assessed cooperative learning as above average (B-) and Comparison students evaluated cooperative learning as average (C+).

Survey Results

Parent Surveys. In year one, surveys were constructed to determine parent perceptions of program effectiveness. Items were based on program goals and effective schools variables and administered to parents in the MAT Project and in the Comparison program. A substantial number of MAT parent surveys (80 of 220) were returned, tabulated, and summarized. The number of comparison parent surveys returned was too small for analysis.

As Table 8 reveals, MAT parents responding to the survey in year one perceived the school program positively. On 23 of 24 items, respondents gave a grade of average (C) or better. Items 25 and 26, which are global items, support this finding. Only on item three (3) was there a substantially (32%) low rating of C-D. However, the low rating on item three was potentially significant because the item spoke to the primary reform introduced at Crabapple Middle. The item stated, "The way students are grouped for instruction in my child's school." Were parents interpreting the item in relation to overall MAT structure or to shorter-term instructional grouping? Questions, designed to answer this question, were created for the spring, 1995, survey to identify specific parental concerns about grouping of students. In year two, both short-term and long-term grouping were given an above average (B) evaluation by both MAT and Comparison parents.

Table 9 contains MAT and Comparison parents' perceptions of program effectiveness in the spring of 1995. Inspection of information in Table 9 reveals that, for one third of items, MAT parents gave grades of above average (B) or higher. Both MAT and Comparison parents gave an average (C) or higher evaluation to all items. Crabapple parents believe that program effectiveness is better than average in virtually all areas.

T tests conducted for differences in mean responses of MAT and Comparison parents revealed that MAT parents gave significantly higher marks for program effectiveness on 18 of 25 items. This finding appears to support the implementation of the MAT structure and accompanying goals. MAT parents, particularly in year two, chose the MAT grouping for their students and might be expected to respond more positively. A longer investigation is needed to confirm this finding.

Student Surveys:

MAT and Comparison Student Responses Compared. Table 10 indicates that Crabapple students evaluated program effectiveness items as average (C) or higher on most items. Only two item received below average (C-) ratings: Students like coming to school and teachers teach students how to get along with others. On seven items MAT students gave significantly higher evaluations than did Comparison students. These included: Teachers handle discipline well, teachers inform parents about student progress, teachers teach subjects well, teachers communicate and plan well, teachers use hands on learning, teachers team teach, and teachers use cooperative learning. Project Adventure received the highest evaluations by students in both MAT and Comparison groups.

Comparison of MAT A and MAT B Survey Responses. Within the MAT teams, students gave a grade of average (C) or higher to 20 items. Only on three items was a grade lower than average given. MAT B students liked coming to school less well than MAT A students. Both MAT A and MAT B students assessed the item, teachers teach students how to get along well with others as average (C-), and MAT A gave an average (C-) rating to the item, teachers show how subjects are related. Significant differences between MAT A and MAT B students occurred on three items: One or more teachers team teach, teachers use cooperative learning, and teachers show how subjects are related. MAT B students gave higher marks on these items than did MAT A.

Summary. Figure 1 summarizes qualitative findings. The MAT structure has been implemented in an attempt to create a more caring and responsive environment in which teachers and students develop stronger relationships and older learners mentor younger ones. Most faculty believe that the family structure and related goals i.e. Project Adventure and mentoring relationships will enhance self-esteem. However, some students and parents are bothered by what they perceive as special treatment for MAT students and some students in the MAT structure miss spending time with peers in the Comparison program. There is evidence that thematic, interdisciplinary planning and instruction is occurring at Crabapple. More integration appears in the MAT programs and the style of planning changed from large team-wide units planned formally in year one to smaller units created informally by pairs of teachers in year two. In year two math appeared to be taught separately from other core subjects. Hands on learning was stressed at Crabapple in all program areas. Use of manipulatives, role-plays, and materials in projects does appear to occur more frequently in the MAT teams. Faculty, parents, and students are enthusiastic in their endorsement of Project Adventure as a tool to provide a range of positive effects on personal and social development. Many talented and Gifted (TAG) students are taught within the MAT groups and a smaller number of learning disabled students are taught through inclusion in the MAT structure. In the case of the TAG students, all MAT teachers have earned gifted credentials and subject contracts are utilized, as one means, to differentiate instruction for gifted students. Learning disability teachers work within MAT structure with MAT faculty to address needs of learning disabled students. Both MAT and special teachers and gifted and learning disabled students report little or no stigma attached to services in the MAT structure.

Figure 1.

Summary of Interview Findings

Project Goal	Outcomes
Create MAT Structure	MAT represents a caring, nurturing family structure.
	Eighth graders mentor sixth and seventh graders.
	Some sixth and eighth graders miss friends in regular program.
	In year one, students were randomly assigned to the MAT teams.
	In year two, parents and students had a choice to join the MAT teams.
Enhanced Self-esteem	Most teachers and parents believe that MAT structure enhances self-esteem (i.e. through closer relationships, success for students through developmentally appropriate, hands on learning, and mentoring by older students).
	Some students are bothered by using texts for older or younger students. They miss friends in the conventional program.
Interdisciplinary Teaching.	Often in MAT instruction, subjects are integrated.
	Teachers plan interdisciplinary units as a team.
	In year one, units were larger and involved more team members.
	In year two, units are smaller, and taught by fewer team members.
	Math tends to be taught separately in year two. There is less integration of math with other subjects and less team

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	planning in math.
	School-wide there is evidence of interdisciplinary teaching. However, integration occurs less frequently outside the MAT teams.
Hands on learning.	There is evidence of considerable hands on learning.
Flexible scheduling.	A flexible schedule is used.
	The schedule is planned for two or three weeks in advance.
	The schedule changes continuously.
Grouping	Groups are changed every six weeks.
	Teachers move students from group to group throughout the year.
Project Adventure	Project Adventure appears to build self confidence, team relationships, leadership and problem solving skills.
	Students, teachers, and parents are enthusiastic about Project adventure.
	Some students and parents say that, because of time constraints, Project Adventure may not be used regularly.
Inclusion Grouping	Most teachers, students and parents are positive about having gifted and learning disabled students taught in the mainstream.
	Contract extensions provide evidence of individualization for gifted students for higher order thinking skills.

Gifted students report that they feel more comfortable not being in resource classes (They are "picked on" less.

In year one, some parents of gifted opposed inclusion grouping.

Chart 1
Current Data Availability

Cohort	Year 0 1992-93	Year 1 1993-94	Year 2 1994-95
4	(Grade 4)	(Grade 5)	(Grade 6) Self Esteem Absenteeism Discipline
3	(Grade 5)	(Grade 6) Absenteeism Discipline	(Grade 7) Self Esteem Discipline ITBS
2	(Grade 6)	(Grade 7) Absenteeism Discipline ITBS	(Grade 8) Self Esteem Absenteeism Discipline ITBS
1	(Grade 7) ITBS	(Grade 8) Absenteeism Discipline ITBS	(Grade 9)

Table 1
Comparison of MAT and Comparison Students With Respect to Measures of Self-Esteem
As Measured in the Fall of 1994-95

Cohort 4 - Grade 6

	MAT Students (n=70)		Comparison Students (n=65)			
Measure	Mean	Std.	Mean	Std.	t	pr(t)
Coopersmith						
Social Self	5.77	1.89	6.75	1.45	-3.37	.001
General Self	17.76	4.57	19.72	3.94	-2.67	.009
Home/Parent	5.59	2.15	6.31	1.86	-2.06	.041
School Achievement	4.56	1.59	5.09	1.59	-1.94	.055
Total	33.69	8.18	37.88	7.09	-3.18	.002

Cohort 3 - Grade 7

	MAT Students (n=48)		Comparison Students (n=52)			
Measure	Mean	Std.	Mean	Std.	t	pr(t)
Coopersmith						
Social Self	6.10	1.74	6.63	1.55	-1.61	.110
General Self	17.56	5.35	19.98	3.63	-2.66	.010
Home/Parent	4.81	2.53	6.21	2.07	-3.03	.003
School Achievement	4.23	1.79	4.61	1.92	-1.04	.302
Total	32.71	9.15	37.44	7.65	-2.82	.006

Cohort 2 - Grade 8

	MAT Students (n=61)		Comparison Students (n=66)			
Measure	Mean	Std.	Mean	Std.	t	pr(t)
Coopersmith						
Social Self	6.90	1.31	6.12	1.88	2.69	.008
General Self	20.41	4.53	18.77	4.63	2.01	.046
Home/Parent	6.00	2.26	6.14	2.03	-0.36	.721
School Achievement	5.36	1.51	4.56	1.87	2.65	.009
Total	38.67	7.59	35.59	8.36	2.17	.032

Table 2

Comparison of MAT and Comparison Students With Respect to Measures of Self-Esteem As Measured in the Spring of 1995

Cohort 4 - Grade Six

	MAT Students (n=63)		Comparison Students (n=68)			
Measure	Mean	Std.	Mean	Std.	t	pr(t)
Coopersmith						
Social Self	5.75	2.05	6.02	1.93	.762	.448
General Self	18.22	5.18	18.39	5.12	.196	.845
Home/Parent	5.31	2.35	5.51	2.47	.473	.637
School Achievement	4.87	1.84	5.27	1.97	1.210	.229
Total	34.14	9.65	35.19	9.58	.621	.536

Cohort 3 - Grade 7

	MAT Students (n=51)		Comparison Students (n=54)			
Measure	Mean	Std.	Mean	Std.	t	pr(t)
Coopersmith						
Social Self	6.07	1.75	5.94	2.14	.350	.727
General Self	17.42	5.44	18.41	5.83	.897	.372
Home/Parent	4.67	2.31	5.45	2.44	1.695	.093
School Achievement	4.56	1.98	4.59	2.42	.076	.940
Total	32.72	9.56	34.39	11.29	.820	.414

Cohort 2 - Grade 8

	MAT Students (n=62)		Comparison Students (n=42)			
Measure	Mean	Std.	Mean	Std.	t	pr(t)
Coopersmith						
Social Self	6.79	1.42	6.06	1.79	-2.381	.019
General Self	20.13	4.31	17.40	5.04	-3.063	.003
Home/Parent	5.68	2.16	5.44	2.42	-.548	.585
School Achievement	5.44	1.83	4.48	1.90	-2.676	.009
Total	38.03	7.58	33.38	9.22	-2.907	.004

Table 3
Comparison of MAT and Comparison Students With Respect to Absenteeism and Disciplinary Referrals for the 1993-94 School Year

Cohort 3 - Grade 6

Measure	MAT Students (n=58) Mean	Std.	Comparison Students (n=65) Mean	Std.	t	pr(t)
Absenteeism	7.55	6.39	5.52	5.37	1.91	.058
Disciplinary Referrals						
Team Members	0.02	0.13	0.14	0.50	-1.80	.074
Non-Team Members	0.12	0.38	0.14	0.58	-0.19	.843

Cohort 2 - Grade 7

Measure	MAT Students (n=65) Mean	Std.	Comparison Students (n=73) Mean	Std.	t	pr(t)
Absenteeism	7.01	6.05	7.51	6.39	-0.46	.645
Disciplinary Referrals						
Team Members	0.04	0.27	0.32	1.14	-1.89	.061
Non-Team Members	0.24	0.61	0.81	1.66	-2.65	.009

Cohort 1 - Grade 8

Measure	MAT Students (n=61) Mean	Std.	Comparison Students (n=67) Mean	Std.	t	pr(t)
Absenteeism	6.72	4.93	7.94	7.14	-1.11	.278
Disciplinary Referrals						
Team Members	0.06	0.30	0.43	1.33	-2.15	.033
Non-Team Members	0.40	0.75	0.70	1.45	-1.49	.138

Table 4
Comparison of MAT and Comparison Students With Respect to Absenteeism and Disciplinary Referrals for the 1994-95 School Year

Cohort 4 - Grade 6

Measure	MAT Students (n=74) Mean	Std.	Comparison Students (n=69) Mean	Std.	t	pr(t)
Absenteeism	6.81	5.94	8.25	8.87	-1.13	.261
Disciplinary Referrals						
Team Members	0.12	0.54	0.33	1.22	-1.33	.185
Non-Team Members	0.33	1.12	0.88	3.52	-1.24	.218

Cohort 3 - Grade 7

Measure	MAT Students (n=59) Mean	Std.	Comparison Students (n=59) Mean	Std.	t	pr(t)
Absenteeism	----	----	----	----	----	----
Disciplinary Referrals						
Team Members	0.05	0.22	0.20	0.83	-1.37	.175
Non-Team Members	0.22	0.56	0.56	1.29	-1.85	.068

Cohort 2 - Grade 8

Measure	MAT Students (n=65) Mean	Std.	Comparison Students (n=69) Mean	Std.	t	pr(t)
Absenteeism	8.40	8.26	8.29	6.89	0.08	.933
Disciplinary Referrals						
Team Members	0.23	0.60	0.46	1.40	-1.30	.200
Non-Team Members	0.30	0.76	0.89	2.03	-2.25	.026

Table 5
Comparison of MAT and Comparison Students With Respect to ITBS Performance
As Measured in the Spring of 1992-93

Cohort 1 - Grade 7

Measure	MAT Students (n=59) Mean	Std.	Comparison Students (n=56) Mean	Std.	t	pr(t)
ITBS						
Reading Total	74.54	20.96	77.55	22.53	-0.74	.459
Reading Comprehension	75.00	20.98	78.14	23.90	-0.75	.455
Language Total	75.15	21.35	78.16	19.33	-0.79	.431
Math Computation	71.20	23.91	74.03	20.52	-0.68	.500
Math Concepts	72.64	22.45	74.27	20.71	-0.40	.688
Math Problem Solving	77.22	24.49	80.23	20.20	-0.72	.475
Math Total	76.02	22.50	78.69	19.39	-0.68	.496
Core Total	76.69	20.74	79.57	19.75	-0.76	.448
Social Studies	75.46	22.02	77.20	20.74	-0.44	.664
Science	72.05	23.60	74.96	21.56	-0.69	.492
Source of Information Total	74.22	20.30	76.80	23.31	-0.63	.527
Composite	76.42	21.19	79.07	20.38	-0.68	.496

Table 6
Comparison of MAT and Comparison Students With Respect to ITBS Performance
As Measured in the Spring of 1993-94

Cohort 2 - Grade 7

Measure	MAT Students (n=66) Mean	Std.	Comparison Students (n=73) Mean	Std.	t	pr(t)
ITBS						
Reading Total	76.14	18.56	71.85	23.81	1.17	.242
Reading Comprehension	77.47	19.15	72.71	23.35	1.31	.194
Language Total	69.14	21.25	70.92	24.12	-0.46	.646
Math Computation	60.38	25.17	70.47	25.26	-2.34	.021
Math Concepts	70.05	22.23	67.45	25.60	0.63	.529
Math Problem Solving	76.94	22.00	72.60	24.56	1.09	.277
Math Total	71.67	22.11	71.60	24.27	0.02	.990
Core Total	73.06	18.59	72.57	23.43	0.13	.893
Social Studies						
Science						
Source of Information Total						
Composite						

Cohort 1 - Grade 8

Measure	MAT Students (n=61) Mean	Std.	Comparison Students (n=62) Mean	Std.	t	pr(t)
ITBS						
Reading Total	74.89	22.48	76.47	21.96	-0.39	.694
Reading Comprehension	73.85	24.27	76.63	21.71	-0.67	.505
Language Total	74.05	21.86	75.50	22.43	-0.36	.717
Math Computation	59.00	23.77	71.37	24.23	-2.84	.005
Math Concepts	71.07	25.62	75.98	24.26	-1.09	.277
Math Problem Solving	75.95	25.04	80.23	20.61	-1.03	.303
Math Total	70.87	24.26	77.90	22.97	-1.65	.101
Core Total	75.05	22.79	77.94	22.25	-0.71	.479
Social Studies						
Science						
Source of Information Total						
Composite						

Table 7
Comparison of MAT and Comparison Students With Respect to ITBS Performance
As Measured in the Spring of 1994-95

Cohort 3- Grade 7

Measure	MAT Students (n=59) Mean	Std.	Comparison Students (n=58) Mean	Std.	t	pr(t)
ITBS						
Reading Total	75.90	21.40	74.49	21.01	0.36	0.722
Reading Comprehension	77.31	21.19	74.19	21.33	0.79	0.430
Language Total	72.66	20.22	67.72	26.52	1.12	0.265
Math Computation	61.51	22.81	71.48	26.71	-2.15	0.034
Math Concepts	69.26	22.70	71.90	22.70	-0.63	0.532
Math Problem Solving	75.52	19.92	73.34	24.64	0.52	0.603
Math Total	71.67	20.38	73.71	24.43	-0.49	0.628
Core Total	72.95	20.95	72.81	24.15	0.03	0.974
Social Studies						
Science						
Source of Information Total						
Composite						

Cohort 2 - Grade 8

Measure	MAT Students (n=65) Mean	Std.	Comparison Students (n=64) Mean	Std.	t	pr(t)
ITBS						
Reading Total	74.25	19.63	72.45	23.36	0.47	0.638
Reading Comprehension	74.85	19.23	73.31	23.54	0.41	0.686
Language Total	75.23	19.69	70.27	26.16	1.21	0.227
Math Computation	40.08	26.00	62.75	27.18	-4.60	0.000
Math Concepts	69.65	25.96	70.85	23.90	-0.27	0.784
Math Problem Solving	77.05	21.39	72.42	23.37	1.17	0.243
Math Total	68.94	23.15	70.52	24.36	-0.38	0.706
Core Total	73.77	19.09	72.15	25.40	0.40	0.693
Social Studies						
Science						
Source of Information Total						
Composite						

Table 8

Survey Results: MAT Parent Perceptions of Programs at Crabapple Middle in 1993-1994 (N=84)

Scale: Excellent = A, Above Ave. = B, Ave = C, Below Ave.= D, Poor = E.

ITEMS	SCALE					
	Blank	A	B	C	D	E
1. The climate for learning in my child's school.	.00	.20	.51	.23	.04	.01
2. The educational standards in my child's school	.00	.21	.48	.25	.04	.00
3. The way students are grouped for instruction in my child's school.	.04	.04	.18	.37	.32	.08
4. How well teachers and administrators maintain discipline in my child's school.	.02	.24	.44	.19	.06	.05
5. How well children get along with other children in my child's school.	.01	.13	.50	.29	.07	.00
6. How well the school helps my child learn to get along with others.	.04	.13	.45	.31	.07	.00
7. The way teachers and administrators encourage students to do well.	.00	.23	.46	.24	.06	.01
8. How well the school personnel treat my child.	.00	.29	.45	.21	.02	.01
9. Relations between parents and the school faculty.	.00	.27	.30	.36	.01	.05
10. How well my child's school builds self esteem.	.03	.20	.43	.26	.06	.01

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	Blank	A	B	C	D	E
11. The reports I get about my child's progress.	.00	.15	.37	.36	.07	.04
12. The amount of information I receive about school activities.	.00	.12	.46	.27	.10	.04
13. How well parents help with homework.	.14	.15	.35	.35	.00	.00
14. The quality of the teaching of subjects in my child's school.	.00	.21	.43	.26	.07	.02
15. How well teachers' communicate and plan with one another.	.05	.21	.37	.27	.04	.00
16. How well "Hands on" or active involvement in learning occurs.	.11	.24	.40	.15	.06	.02
17. How well teachers team-teach classes?	.04	.31	.48	.17	.00	.00
18. How well cooperative learning is used.	.08	.36	.33	.17	.02	.01
19. How well subjects are interrelated.	.10	.26	.43	.18	.02	.00
20. How well gifted students are taught.	.06	.33	.37	.21	.02	.00
21. How well learning disabled students are taught.	.30	.14	.23	.20	.07	.05
22. Students' good work is recognized.	.48	.12	.18	.19	.04	.00
23. The way teachers care about students.	.02	.31	.39	.20	.04	.01
24. The amount of success Crabapple student achieve.	.07	.18	.45	.26	.02	.00

Items for MAT parents:

25. How well Project Adventure is conducted?	.10	.38	.28	.18	.05	.00
26. My overall evaluation of the MAT program.	.12	.30	.27	.19	.06	.03

Table 9. MAT and Comparison Parents' Perceptions of School Effectiveness for 1994-1995

Scale: Excellent = A, Above Average = B, Average = C, Below Average = D, Poor = E.

ITEMS	Comparison Parents (N=67)		MAT Parents (N=67)			MAT Parents
	Mean	SD	Mean	SD	t	pr(t)
1. The climate for learning in my child's school.	3.37	.85	3.91	.77	3.83	.0002
2. The educational standardsin my child's school.	3.63	.74	3.88	.79	1.82	.0720
3. The way students are grouped long-term for instruction in my child'sschool.	3.43	.91	4.00	.84	4.10	.0001
4. The way students are grouped short-term for instruction in my child's school.	3.43	.81	3.94	.83	3.41	.0009
5. How well teachers and administrators maintain discipline in my child's school.	3.36	1.07	3.75	1.05	2.11	.037
6. How well children get along with other children in my child's school.	3.35	.95	3.65	.77	2.01	.047
7. How well the school helps my child learn to get along with others.	3.29	.91	3.88	.85	3.78	.0002
8. The way teachers and administrators encourage students to do well.	3.4	1.03	4.00	.84	3.66	.0004
9. How well the school personnel treat my child.	3.59	.97	4.08	.92	2.90	.005

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Page 2	Mean	SD	Mean	SD	t	pr(t)
10. Relations between parents and the school faculty.	3.53	1.02	3.88	.90	2.04	.044
11. How well my child's school builds self-esteem.	3.18	1.06	3.73	.90	3.14	.002
12. The reports I get about my child's progress.	3.57	1.07	3.75	1.00	1.00	.332
13. The amount of information I receive about school activities.	3.54	1.08	3.85	.89	1.78	.078
14. How well parents help with home work.	3.78	.80	3.66	.82	-0.7	.517
15. The quality of the teaching of subjects in my child's school.	3.53	.87	3.92	.76	2.64	.009
16. How well teachers' communicate and plan with one another.	3.29	1.08	4.14	.80	5.05	.000
17. How well "Hands on" or active involvement in learning occurs.	3.36	1.02	4.11	.72	4.78	.000
18. How well teachers team-teach classes?	3.39	.92	4.16	.80	5.11	.000
19. How well cooperative learning is used.	3.17	.99	4.03	.82	5.15	.000
20. How well subjects are interrelated.	3.39	.87	4.03	.79	4.34	.000
21. How well gifted students are taught.	3.62	1.01	3.58	.89	-0.2	.83
22. How well learning disabled students are taught.	3.32	1.02	3.56	.73	1.16	.251
23. Students' good work is recognized.	3.40	1.05	3.92	.86	2.95	.004

Items for parents of students in the MAT program.						
24. How well Project Adventure is conducted?	4.00	4.00	4.13	.96	.228	.82
25. My overall evaluation of the MAT program.	4.00	4.00	4.23	.87	.373	.71

Please comment on the following (all parents):

A. Improvements needed at Crabapple Middle School:

B. Strengths of Crabapple Middle School:

Table 10. MAT and Comparison Student
Perceptions of Programs at Crabapple Middle, 1994-1995

Scale: Always = A, Often = B, Sometimes = C, Seldom = D, and Never = E.

ITEM	MAT Group Mean	SD	Comparison Group Mean	SD	t	pr(t)
1. Students like coming to school.	3.00	1.05	2.95	1.01	-.45	.65
2. Students know what is expected in this school.	3.77	1.02	3.76	.91	-.90	.10
3. Students are grouped well for school work.	3.34	1.01	3.15	1.03	-1.64	.10
4. Teachers handle behavior problems well.	3.45	3.21	1.02	1.20	-1.93	.05
5. Students get along well with other students.	3.56	.89	3.41	.90	-1.49	.14
6. Teachers teach students how to get along with others.	2.90	1.22	2.94	1.22	.37	.71
7. Teachers encourage students to do well.	3.90	1.06	3.87	1.11	.29	.77
8. Teachers and administrators treat students well.	3.50	1.07	3.49	1.17	-.05	.96
9. Parents and teachers communicate well.	3.54	1.02	3.51	1.13	-.32	.75
10. Teachers and administrators encourage students to feel good about themselves.	3.55	1.13	3.61	1.09	.50	.62
11. Teachers inform parents about student progress.	3.86	1.02	3.62	1.12	-2.01	.05
12. Teachers and administrators inform parents about school activities.	3.41	1.08	3.49	1.11	.74	.46
13. Parents of Crabapple students help with homework.	3.38	1.11	3.38	1.06	-.02	.98

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	Mean	SD	Mean	SD	t	pr(t)
14. Teachers teach subjects well.	3.67	.91	3.44	1.03	-2.12	.04
15. Teachers communicate and plan well with one another.	3.98	.95	3.72	1.10	-2.36	.02
16. Teachers provide opportunities for "hands on" or active participation in learning.	3.74	1.00	3.35	1.12	-3.38	.0008
17. One or more teachers team-teach during classes.	3.33	1.04	2.61	1.27	-5.65	.0000
18. Teachers use cooperative or team learning.	3.71	.94	3.31	1.03	-3.76	.0002
19. Teachers show how subjects are related to one another.	3.25	1.10	3.27	1.22	.19	.85
Please mark number 20 only if you are currently in TAG.						
20. Gifted students are taught well.	3.69	1019	3.76	1.06	.40	.69
Please mark number 21 only if you are being taught by an IRR teacher.						
21. IRR (learning disabled) students are taught well.	3.24	1.38	3.77	1.07	1.63	.11
Please mark items 22 and 23 only if you are currently on one of the MAT Teams):						
22. Project Adventure activities are taught well.	4.23	1.02	4.00	1.27	-.98	.33
23. The MAT program is conducted effectively.	3.71	1.08	3.50	1.37	-.83	

Table 11. Comparison of MAT A and MAT B Students' Perceptions of Program Effectiveness, 1994-1995

ITEM	MAT A Students		MAT B Students			
	Mean	SD	Mean	SD	t	pr(t)
1. Students like coming to school.	3.14	.95	2.87	1.13	1.71	.09
2. Students know what is expected in this school.	3.65	1.12	3.88	.93	-1.54	.13
3. Students are grouped well for school work.	3.36	1.05	3.32	.98	.25	.80
4. Teachers handle behavior problems well.	3.49	.98	3.41	1.05	.45	.65
5. Students get along well with other students.	3.57	.87	3.55	.90	.13	.89
6. Teachers teach students how to get along with others.	2.93	1.15	2.86	1.28	.32	.75
7. Teachers encourage students to do well.	3.83	1.03	3.97	1.09	-0.86	.39
8. Teachers and administrators treat students well.	3.47	1.05	3.53	1.09	-0.35	.72
9. Parents and teachers communicate well.	3.49	1.00	3.60	1.04	-0.69	.49
10. Teachers and administrators encourage students to feel good about themselves.	3.58	1.05	3.53	1.21	.29	.77
11. Teachers inform parents about student progress.	3.88	1.02	3.83	1.03	.31	.76
12. Teachers and administrators inform parents about school activities.	3.36	1.10	3.44	1.07	-0.5	.62
13. Parents of Crabapple students help with homework.	3.23	1.15	3.52	1.06	-1.69	.09

Page 2. Comparison of MAT A and MAT B Students' Perceptions of School Effectiveness

Item	MAT A Students		MAT B Students			
	Mean	SD	Mean	SD	t	pr(t)
14. Teachers teach subjects well.	3.65	1.06	3.69	.76	-0.28	.78
15. Teachers communicate and plan well with one another.	4.04	.93	3.93	.96	.72	.47
16. Teachers provide opportunities for "hands on" or active participation in learning.	3.66	.99	3.82	1.0	-1.01	.31
17. One or more teachers team-teach during classes.	3.04	1.07	3.60	.95	-3.66	.0003
18. Teachers use cooperative or team learning.	3.51	1.03	3.89	.82	-2.68	.008
19. Teachers show how subjects are related to one another.	2.94	1.10	3.53	1.03	-3.67	.0003
Please mark number 20 only if you are currently in TAG.						
20. Gifted students are taught well.	3.71	1.30	3.67	1.03	.18	.86
Please mark number 21 only if you are being taught by an IRR teacher.						
21. IRR (learning disabled) students are taught well.	3.18	1.37	3.33	1.45	-.32	.75
Please mark items 22 and 23 only if you are currently on one of the MAT Teams):						
22. Project Adventure activities are taught well.	4.33	.96	4.15	1.07	1.13	.26
23. The MAT program is conducted effectively.	3.75	1.21	3.68	.94	.42	.67

Please comment on the following (all students):
A. Improvements needed at Crabapple school are:
B. Strengths of the Crabapple program are:
Scale Used: Always = A, Often = B, Sometimes = C, Seldom = D, and Never = E.